

## WEST Search History

DATE: Tuesday, June 17, 2003

Set Name Query  
side by sideHit Count Set Name  
result set*DB=USPT,PGPB,JPAB,EPAB; PLUR=YES; OP=OR*

L33	l32 or l29	386	L33
L32	L31 not l29	119	L32
L31	(roller or rolling) and L30	151	L31
L30	(titanium adj3 alloy) same bearing	660	L30
L29	l22 or L28	267	L29
L28	l24 or l27	139	L28
L27	4848934[uref]	23	L27
L26	5660482[uref]	3	L26
L25	L24 not l22	110	L25
L24	l12 and L23	118	L24
L23	(titanium adj3 alloy) and l11	1834	L23
L22	l21 or l19	137	L22
L21	L20 not l19	6	L21
L20	(titanium adj3 alloy) and raceway	18	L20
L19	l18 or l16	131	L19
L18	L17 not l16	82	L18
L17	"rolling surface" and l11	94	L17
L16	l13 or l15	49	L16
L15	(5086560  5518820)! [pn]	2	L15
L14	6250812[uref]	0	L14
L13	raceway and l11	47	L13
L12	l10 and L11	346	L12
L11	(bearing or raceway or roller or rolling) same titanium	7630	L11

*DB=USPT,PGPB; PLUR=YES; OP=OR*

L10	l8 or L9	22249	L10
L9	384/206 or 384/492 or 384/564 or 384/527 or 384/565 or 384/569 or 384/572 or 384/625 or 384/23 or 148/906 or 428/660 or 428/627 or 428/632 or 428/609 or 428/687 or 428/213 or 428/336 or 428/704 or 428/457	20102	L9
L8	((428/408 )!.CCLS. )	2755	L8

*DB=JPAB,DWPI; PLUR=YES; OP=OR*

L7	jp-05014641-\$.did.	2	L7
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L6 jp-11153140-\$.did.  
L5 jp-11247863-\$.did.  
L4 jp-07103247-\$.did.  
L3 jp-11223221-\$.did.  
L2 jp-411223221-\$.did.  
L1 jp-2000035043-\$.did.

2 L6  
2 L5  
1 L4  
2 L3  
0 L2  
2 L1

END OF SEARCH HISTORY

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## Search Results - Record(s) 1 through 2 of 2 returned.

☐ 1. Document ID: JP 11247863 A

L5: Entry 1 of 2

File: JPAB

Sep 14, 1999

PUB-NO: JP411247863A  
DOCUMENT-IDENTIFIER: JP 11247863 A  
TITLE: MULTIPOINT CONTACT BALL BEARING

PUBN-DATE: September 14, 1999

## INVENTOR-INFORMATION:

NAME

COUNTRY

TANIGUCHI, MASAHIITO

KONNO, MASARU

ARAMAKI, HIROTOSHI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

NIPPON SEIKO KK

APPL-NO: JP10055253

APPL-DATE: March 6, 1998

INT-CL (IPC): F16 C 33/62; C23 C 14/06; C23 C 16/36; F16 C 19/14

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide a multipoint contact ball bearing excellent in abrasion resistance and seizure resistance by applying surface preparation on a bearing ring of the multipoint contact ball bearing.

SOLUTION: A hard film is applied at least on a surface of a track surface of one or both of bearing rings consisting of both rings of an inner ring (1a, 1b in case of two-piece inner ring) and an outer ring 2 on a multipoint contact ball bearing of three point contact, four point contact, etc. It is possible to use a super hard film of, for example, CrN, TiN, TiC, etc., as the film. Additionally, film thickness is desirably in a range of 0.1-5

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC
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☐ 2. Document ID: JP 11247863 A

L5: Entry 2 of 2

File: DWPI

Sep 14, 1999

DERWENT-ACC-NO: 1999-567610  
DERWENT-WEEK: 199948

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TITLE: Washer structure in multipoint contact ball bearing - has hard film formed on washer surface at portions contacting with ball surface

PATENT-ASSIGNEE: NIPPON SEIKO KK (NSEI)

PRIORITY-DATA: 1998JP-0055253 (March 6, 1998)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 11247863 A	September 14, 1999		006	F16C033/62

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 11247863A	March 6, 1998	1998JP-0055253	

INT-CL (IPC): C23 C 14/06; C23 C 16/36; F16 C 19/14; F16 C 33/62

ABSTRACTED-PUB-NO: JP 11247863A

## BASIC-ABSTRACT:

NOVELTY - A hard film of CrN, TiN or TiC is formed on the surface of either of inner ring, outer ring (2) of washer or both, in the portions that contact with the ball surface. The film thickness is in the range of 0.5-3 mu m.

USE - In multipoint contact ball bearing e.g. 3 point, 4 point contact ball bearing.

ADVANTAGE - Burning, abrasion and damage to the bearing are prevented even during the large radial load by the hard film coated on the contact surface of the washer. Antiwear quality is excellent and seizing resistance is improved due to hard anodic oxidation coating formed on bearing washer. DESCRIPTION OF DRAWING(S) - The figure shows sectional diagram of 3 point contact ball bearing. (2) Outer ring of washer.

ABSTRACTED-PUB-NO: JP 11247863A

## EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/8

DERWENT-CLASS: M13 Q62

CPI-CODES: M13-H04;

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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